

U.S. Army Corps of Engineers

Inspection Guide for Flood Control Works

Name of Project: _____

Date Inspected: _____

Public Sponsor: _____

Sponsor Phone/ Email: _____

Corps of Engineers Inspector: _____

Public Sponsor Representative: _____

Type of Inspection (Check One):
☐ **Initial**
☐ **Continuing**

Overall Project Rating (Check One):
☐ **Acceptable**
☐ **Minimally Acceptable (Maintenance is required)**
☐ **Unacceptable**

INSPECTOR'S OBSERVATIONS:

Contents of this Inspection Report:

- ☐ Basic Eligibility (IEI specific)
- ☐ FCW Engineering (IEI specific)
- ☒ General Items for All Flood Control Works
- ☐ Levees
- ☐ Concrete Floodwalls
- ☐ Interior Drainage System
- ☐ Pump Stations
- ☐ Earthen Flood Control Channels
- ☐ Concrete Lined Channels
- ☒ Instructions

Note: A plan view drawing of the Flood Control Works, with stationing, should be attached to this report to reference locations of items rated less than acceptable. Photos should be taken of general project condition and any noted deficiencies.

Basic Eligibility

For use only during Initial Eligibility Inspections of Non-Federally Constructed Flood Control Works

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
1. Public Sponsor (A or U only)					A The Public Sponsor is a legally constituted public body with full authority and capability to perform the terms of its agreement as the non-Federal partner of the Corps for a project, able to pay damages, if necessary, in the event of its failure to perform. The public sponsor may be a State, County, City, Town, Federally recognized Indian Tribe or tribal organization, Alaska Native Corporation, or any political subpart of a State or group of states that has the legal and financial authority and capability to provide the necessary cash contributions and the lands, easements, rights-of-way, relocations, and borrow and dredged or excavated materials disposal areas (LERRD's) necessary for the project, and who could legally hold and save the Federal government free from damages that could potentially arise during post-flood rehabilitations or other work on the FCW.	
					U The project does not have a public sponsor as defined above.	
2. Flood Protection (A or U only)					A The principal function of the project is to protect people or property from floods.	
					U The project was built or is primarily used for channel alignment, recreation, fish and wildlife, land reclamation, drainage, to protect against land erosion or tidal inflows, or for some other non-flood related purpose.	
3. Project Completion (A or U only)					A Project construction has been completed.	
					U The project is still under construction.	
4. Construction Compliance (A or U only)					A Appropriate local, State, tribal, and/or Federal permits (right-of-way, easements, regulatory permits, etc.), or waivers thereof, have been obtained for FCW construction and subsequent modifications. The project was constructed in accordance with all applicable Federal, state and local codes, ordinances, and applicable laws.	
					U The appropriate permits (or waivers thereof) have not been obtained for the project, or the project was not constructed in accordance with applicable codes, ordinances, and laws.	

Key: **A** = Acceptable. **M** = Minimally Acceptable; Maintenance is required. **U** = Unacceptable. **N/A** = Not Applicable. **RODI** = Requires Operation During Inspection

FCW Engineering

For use only during Initial Eligibility Inspections of Non-Federally Constructed Flood Control Works

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
1. Minimum Elevation (A or U only) (See instructions)					A • Urban Levees and Floodwalls- Minimum elevation corresponding to a flood level with 10% probability of occurring in a given year (10-year flood). • Agricultural Levees and Floodwalls- Minimum elevation corresponding to a flood level with 20% probability of occurring in a given year (5-year flood). • Flood Control Channels- Minimum capacity is for a flood with a 10% probability of occurring in a given year (10-year flood). Improved channels must additionally provide drainage for at least 1.5 square miles of land and have a capacity of at least 800 cfs. (NOTE: Interior drainage channels within the protected area of a levee system are not flood control channels.)	
					U The FCW does not meet requirements for minimum elevation, capacity, or drainage area.	
2. Physical Location and Cross Section (A or U only)					A The physical location, cross section, and other design elements of the FCW are sufficient to provide reliable flood protection. The FCW is (or is an element of) a closed system, tied into high ground.	
					U The FCW was not constructed in an appropriate location, does not have an appropriate cross section; is not properly tied into high ground, or has other shortcomings with design elements necessary for providing reliable flood protection.	
3. Embankment Fill					A Embankment material is suitable to prevent slides and seepage problems.	
					U Embankment material is unsuitable and is likely to contribute to the development of slides or seepage problems.	
4. Embankment Material Uniformity/ Compactness					A Fill material is uniform and adequately compacted throughout the entire FCW.	
					M Fill material is uniform and adequately compacted in 75% or more of the FCW.	
					U Fill material is not uniform, or there is no compaction and evidence indicates a need for compaction.	
5. Foundations					A Foundation material will not cause piping, sand boils, seepage, or settlements that will reduce the level of protection.	
					M Foundation material may show signs of excessive seepage, minor sand boils, and localized settlement.	
					U Foundation materials are unsuitable and likely to cause excessive uncontrolled seepage, sand boils, and / or piping.	
					N/A The foundation problems described above do not apply to this type of FCW.	
6. Primary Levee					A In the case of a levee project, the levee is a primary levee or is a secondary levee which is designed to protect human life or was designed as a major component of the primary levee system, necessary to assure the flood control protection of the total system.	
					U The levee is a secondary levee, and was not designed to protect human life or as a major component of the primary levee system.	
					N/A The FCW is not a levee system.	

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FCW Engineering (continued)

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RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
7. Interior Drainage System (including culverts, gates, pump stations)					A Given the level of protection provided by the FCW, interior drainage structures are appropriately sized, situated, and constructed to move anticipated runoff and seepage out of the protected area. Pump stations will not become inundated during regular operation and their power system is adequately designed and reliable.	
					U Interior drainage structures are undersized, poorly constructed, poorly situated, or unreliably designed.	
					N/A The issue of interior drainage does not apply to this type of FCW.	
8. Structures					A Structures are capable of performing their designed functions and show no signs of failure.	
					M Structures are performing their design functions but show signs of overtopping and bypassing flows.	
					U Structures are not performing their designed functions or show signs of potential structural failure.	
9. Erosion Control					A Erosion protection is capable of handling the designed flow velocity for the level of protection for the entire FCW. The FCW is protected against bank caving and slides in all necessary areas, and has adequate drainage to protect FCW slopes from runoff erosion.	
					M Erosion protection is capable of handling the designed flow velocity for the level of protection for 75% or more of the FCW.	
					U Erosion protection measures protect less than 75% of the FCW. Erosion protection is not present and there is evidence indicating a need for erosion protection.	

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General Items for All Flood Control Works

For use during Initial and Continuing Eligibility Inspections of all Flood Control Works

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
1. Project Operations and Maintenance Manual (A or U only)					A Levee Owner's Manual, ICW O&M Manuals, and/or manufacturer's operating instructions are present.	
					U These manuals are lost or missing.	
2. Emergency Supplies and Equipment					A The sponsor maintains a stockpile of sandbags, shovels, and other flood fight supplies which will adequately supply all needs for the initial days of a flood fight.	
					M The sponsor does not maintain an adequate supply of flood fighting materials as part of their preparedness activities.	
3. Flood Preparedness and Training (A or M only)					A Sponsor has a solid understanding of how to operate, maintain, and staff the FCW during a flood, and has written plans that include information such as low spots or sand boils. The sponsor also has plans that cover short term situations. (For instance, if a culvert through the levee is being replaced, then the sponsor knows how to respond to a flood while the levee integrity is lacking due to the construction.)	
					M The sponsor maintains a good working knowledge of flood response activities, but there are insufficient plans to address project specific features or short term situations, or the knowledge of flood response activities is maintained by a very small number of individuals within the community. Additional planning or training is required to ensure the success of the FCW during a flood event.	

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Levees

For use during all Initial and Continuing Eligibility Inspections of levees

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
1. Sod Cover					A There is good coverage of sod cover over the levee.	
					M Approximately 25% of the sod cover is missing or damaged over a significant portion or over significant portions of the levee embankment. This may be the result of over-grazing or feeding on the levee, unauthorized vehicular traffic, chemical or insect problems, or burning during inappropriate seasons.	
					U Over 50% of the sod cover is missing or damaged over a significant portion or over significant portions of the levee embankment. This may be the result of over-grazing or feeding on the levee, unauthorized vehicular traffic, chemical or insect problems, or burning during inappropriate seasons.	
2. Unwanted Vegetation Growth					A The levee has a good grass cover with little or no unwanted vegetation (trees, bushes, or undesirable weeds) and has been recently mowed. Except in those cases where a vegetation variance has been granted by the Corps, a 5 meter (15') zone, free from all woody vegetation, is maintained adjacent to the landward/ riverside toe of the FCW for maintenance and flood-fighting activities. Additionally, a 1 meter (3') root free zone is maintained to protect the external limits of the levee cross section. Reference EM 1110-2-301 and/or local Corps policy.	
					M Minimal number of trees (5 cm (2") diameter or smaller) and/or brush present on the levee or within the 5 meter (15') zone, that will not threaten the integrity of the project but which need to be removed.	
					U Tree, weed, and brush cover exists in the FCW requiring removal to reestablish or ascertain FCW integrity. (NOTE: If significant growth on levees exists, prohibiting the inspection of animal burrows or other inspection items, then the levee inspection should be ended until this item is corrected.)	
3. Depressions/ Rutting					A There are no ruts, pot holes, or other depressions on the levee, except for minor depressions caused by levee settlement. The levee crown, embankments, and access road crowns are well established and drain properly without any ponded water.	
					M Some minor depressions in the levee crown, embankment, or access roads that will not pond water and do not threaten the integrity of the levee.	
					U There are depressions greater than 15 cm (6 inches) deep that will pond water, endangering the integrity of the levee.	
4. Erosion/ Bank Caving					A No active erosion or bank caving observed on the landward or on the riverward side of the levee.	
					M There are areas where active erosion is occurring or has occurred on or near the levee embankment, but levee integrity is not threatened.	
					U Erosion or caving is occurring or has occurred that threatens the stability and integrity of the levee. The erosion or caving has progressed into the levee section or into the extended footprint of the levee foundation and has compromised the levee foundation stability.	

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Levees (continued)

For use during all Initial and Continuing Eligibility Inspections of levees

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
5. Slope Stability					A No slides present.	
					M Minor superficial sliding that with deferred repairs will not pose an immediate threat to FCW integrity.	
					U Evidence of deep seated sliding that threatens FCW integrity. Repairs are required to reestablish FCW integrity.	
6. Cracking					A No cracking observed on the levee greater than 15 cm (6 inches) deep.	
					M Longitudinal and/or transverse cracking greater than 15 cm (6 inches) deep. No evidence of vertical movement along the crack.	
					U Longitudinal and/or transverse cracking present and exhibits signs of vertical movement.	
7. Animal Control					A Continuous animal burrow control program in place that includes the elimination of active burrowing and the filling in of existing burrows.	
					M The existing animal burrow control program needs to be improved. Several animal burrows present which may lead to seepage or slope stability problems, and they require immediate attention.	
					U Animal burrow control program is not effective or is nonexistent. Significant maintenance is required to fill existing burrows, and the levee will not provide reliable flood protection until this maintenance is complete.	
8. Encroachments					A No trash, debris, excavations, structures, or other obstructions present within the project easement area. Encroachments which do not diminish proper functioning of the project have been previously approved by the Corps.	
					M Trash, debris, excavations, structures, or other obstructions present, or inappropriate activities that will not inhibit project operations and maintenance or emergency operations. Encroachments have not been approved by the Corps.	
					U Trash, debris, excavation, structures, or other obstructions present, or inappropriate activities that will inhibit project operations and maintenance or emergency operations.	
9. Riprap Revetments & Banks					A Existing riprap protection is properly maintained and is undamaged. Riprap clearly visible.	
					M No riprap displacement or scouring activity that could undercut banks, erode embankments, or restrict desired flow. Unwanted vegetation must be cleared and sprayed with an appropriate herbicide.	
					U Dense brush, trees, or grasses hide the rock protection, or meandering and/or scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling.	
					N/A There is no riprap protecting the levee.	

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Levees - Continued on Next Page

Levees (continued)

For use during all Initial and Continuing Eligibility Inspections of levees

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
10. Closure Structures (Stop Log, Earthen Closures, or Gates) (A or U only)					A Closure structure in good repair. Placing equipment, stoplogs, and other materials are readily available at all times. Components of closure clearly marked and installation instructions / procedures readily available.	
					U Closure structure in poor condition. Parts missing or corroded. Placing equipment may not be available within normal warning time.	
					N/A There are no closure structures along the levee.	
11. Underseepage Relief Wells/ Toe Drainage Systems					A Toe drainage systems and pressure relief wells necessary for maintaining FCW stability during flood events functioned properly during the last flood event and no sediment is observed in horizontal system (if applicable). Nothing is observed which would indicate that the system won't function properly during the next flood.	
					M Toe drainage systems or pressure relief wells are damaged and may become clogged if they are not repaired.	
					U Toe drainage systems or pressure relief wells necessary for maintaining FCW stability during flood events have fallen into disrepair or have become clogged.	
					N/A There are no relief wells/ toe drainage systems along the levee.	

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Additional issues noted during the inspection:

Concrete Floodwalls

For use during all Initial and Continuing Eligibility Inspections of concrete floodwalls

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
1. Concrete Surfaces					A Negligible spalling, scaling or cracking. If the concrete surface is weathered, rough to the touch, or holds moisture, it is still satisfactory but should be seal coated to prevent freeze/ thaw damage.	
					M Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs/ sealing is necessary to prevent additional damage during periods of thawing and freezing.	
					U Surface deterioration or deep, controlled cracks present that result in an unreliable structure.	
2. Tilting, Sliding or Settlement of Concrete and Sheet Pile Structures					A There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the project.	
					M There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The integrity of the structure is not in danger.	
					U There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance.	
3. Foundation of Concrete and Sheet Pile Structures					A No scouring / erosion, or undermining near the structure.	
					M Scouring / erosion near the footing of the structure but not close enough to affect structure stability during the next flood.	
					U Scouring or undermining at the foundation that has affected structural integrity.	
4. Monolith Joints					A The monolith joint material is in good condition.	
					M The monolith joint material is deteriorating and needs to be repaired or replaced to prevent spalling and cracking during freeze/ thaw cycles.	
					U The monolith joint material is severely deteriorated and the concrete has spalled and cracked, damaging the waterstop to the point where it will not provide the intended level of protection during a flood.	
					N/A There are no monolith joints in the floodwall.	
5. Erosion/ Bank Caving					A No active erosion or bank caving on the riverward side of the floodwall which might endanger its stability.	
					M There are areas where the ground is eroding towards the base of the floodwall and efforts need to be taken to slow and repair this erosion, but the erosion has not yet progressed to the point that the floodwall will loose stability during a flood event.	
					U Erosion or bank caving is occurring or has occurred riverward of the levee which threatens the stability of the floodwall.	

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Concrete Floodwalls- Continued on the next page

Concrete Floodwalls (continued)

For use during all Initial and Continuing Eligibility Inspections of concrete floodwalls

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
6. Unwanted Vegetation Growth					A A grass-only zone is maintained on both sides the floodwall. All trees, brush, and unwanted vegetation have been removed from this zone for maintenance, flood-fighting activities, and to protect the floodwall. The grass-only zone extends from the concrete wall to a point 2.5 meters (8') beyond the underground toe and heel of the floodwall. Reference EM 1110-2-30 and/or local Corps policy.	
					M There are some areas where unwanted vegetation is growing near the floodwall. This vegetation must be removed, but does not currently threaten the integrity of the project.	
					U There is a significant amount of tree, weed, or brush growth near the floodwall, which may limit access during flood fight operations or the roots of which may offer accelerated seepage paths under the structure.	
7. Encroachments					A No trash, debris, excavations, structures, or other obstructions present within the project easement area. Encroachments which do not diminish proper functioning of the project have been previously approved by the Corps.	
					M Trash, debris, excavations, structures, or other obstructions present, or inappropriate activities that will not inhibit project operations and maintenance or emergency operations. Encroachments have not been approved by the Corps.	
					U Trash, debris, excavation, structures, or other obstructions present, or inappropriate activities that will inhibit project operations and maintenance or emergency operations.	
8. Closure Structures (Stop Log Closures and Gates) (A or U only)					A Closure structure in good repair. Placing equipment, stoplogs, and other materials are readily available at all times. Components of closure clearly marked and installation instructions / procedures readily available.	
					U Closure structure in poor condition. Parts missing or corroded. Placing equipment may not be available within normal warning time.	
					N/A There are no closure structures along the floodwall.	
9. Underseepage Relief Wells/ Toe Drainage Systems					A Toe drainage systems and pressure relief wells necessary for maintaining FCW stability during flood events functioned properly during the last flood event and no sediment is observed in horizontal system (if applicable). Nothing is observed which would indicate that the system won't function properly during the next flood.	
					M Toe drainage systems or pressure relief wells are damaged and may become clogged if they are not repaired.	
					U Toe drainage systems or pressure relief wells necessary for maintaining FCW stability during flood events have fallen into disrepair or have become clogged.	
					N/A There are no relief wells/ toe drainage systems along the floodwall.	

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Additional issues noted during the inspection:

Interior Drainage System

For use during all Initial and Continuing Eligibility Inspections of systems carrying interior drainage through the FCW

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
1. Vegetation and Obstructions					A Minimal, scattered obstructions or vegetation. The flow is not impeded.	
					M Log jams, snags, vegetation growth (such as cat tails, bull rushes, bushes, or saplings), or other obstructions block approximately 25% of the FCW.	
					U Log jams, snags, vegetation growth (such as cat tails, bull rushes, bushes, or saplings), or other obstructions block approximately 50% of the FCW.	
2. Encroachments					A No trash, debris, excavations, structures, or other obstructions present within the project easement area. Encroachments which do not diminish proper functioning of the project have been previously approved by the Corps.	
					M Trash, debris, excavations, structures, or other obstructions present, or inappropriate activities that will not inhibit project operations and maintenance or emergency operations. Encroachments have not been approved by the Corps.	
					U Trash, debris, excavation, structures, or other obstructions present, or inappropriate activities that will inhibit project operations and maintenance or emergency operations.	
3. Riprap Revetments of Inlet/ Discharge Areas					A Existing riprap protection is properly maintained and is undamaged. Riprap clearly visible.	
					M No riprap displacement or scouring activity that could undercut banks, erode embankments, or restrict desired flow. Unwanted vegetation must be cleared and sprayed with an appropriate herbicide.	
					U Dense brush, trees, or grasses hide the rock protection, or meandering and/or scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling.	
					N/A There is no riprap protecting the interior drainage system, or the riprap is discussed in another section.	
4. Erosion of Inlet/ Discharge Areas					A No active erosion or bank caving observed on the landward or on the riverward side of the levee.	
					M There are areas where active erosion is occurring or has occurred on or near the levee embankment, but levee integrity is not threatened.	
					U Erosion or caving is occurring or has occurred that threatens the stability and integrity of the levee. The erosion or caving has progressed into the levee section or into the extended footprint of the levee foundation and has compromised the levee foundation stability.	
					N/A There are no inlet/discharge areas.	

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Interior Drainage - Continued on Next Page

Interior Drainage System (continued)

For use during all Initial and Continuing Eligibility Inspections of systems carrying interior drainage through the FCW

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
5. Blockage of Culverts (Inlets, Sump, and Discharge Areas)					A There is little or no debris, sediment, or vegetation blocking the culverts, inlets, sump, or discharge areas. The channel capacity for designed flow is not affected.	
					M Debris, sediment, or vegetation blocks less than 10 percent of the culvert opening, but must be removed.	
					U Accumulated debris, sediment, or vegetation blocks more than 10 percent of the culvert opening, impairing the culvert's capacity and hydraulic effectiveness.	
					N/A There are no culverts.	
6. Culverts					A There are no breaks, holes, cracks in the culvert that would result in significant water leakage. Corrugated metal pipes, if present, are in good condition or have been relined with appropriate material, which is still in good condition.	
					M There are breaks, holes, cracks in the culvert that would result in water leakage and need to be repaired, but do not threaten the integrity of the project. Corrugated metal pipes, if present, are showing deterioration but the entire length of pipe is still structurally sound and is not in danger of collapsing.	
					U Culvert has deterioration and/or has significant leakage such that it threatens the integrity of the FCW. Corrugated metal pipes are in danger of collapsing or have already begun to collapse.	
					N/A There are no culverts.	
8. Trash Racks (non-mechanical)					A Trash racks are fastened in place and properly maintained.	
					M Trash racks are in place but are unfastened or have bent bars that allow debris to enter into the pipe or pump station. Repair or replacement is required.	
					U Trash rack is missing or damaged to the extent that it is no longer functional and must be replaced.	
					N/A There are no trash racks.	
9. Flap Gates/Flap Valves/ Pinch Valves RODI					A Flap gates open and close easily with minimal leakage. Gates show no corrosion damage and have been maintained.	
					M Gate will not fully open or close because of obstructions that can be easily removed, or has corrosion damage that requires maintenance.	
					U Gate is missing, has been damaged, or has deteriorated and needs repair.	
					N/A There are no flap gates.	

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Interior Drainage - Continued on Next Page

Interior Drainage System (continued)

For use during all Initial and Continuing Eligibility Inspections of systems carrying interior drainage through the FCW

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
10. Sluice / Slide Gates RODI					A Gates open and close freely with minor leakage. Sill is free of sediment and other obstructions. Gates and lifters have been maintained.	
					M Gates have been damaged or have deteriorated, and open and close with resistance or binding. Leakage quantity is controllable and is not a threat to project performance. Maintenance is required.	
					U Gates do not open or close. Gate, stem, lifter and/or guides may be damaged or corroded.	
					N/A There are no sluice/ slide gates.	
11. Electric Gate Operators for Sluice / Slide Gates RODI					A All electric gate operators are in good working condition and are adequately powered, and are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.	
					M All electric gate operators are operational with minor deficiencies, but should perform through the next period of usage.	
					U The electric gate operators are not operational, or the power source is not considered reliable to sustain operations during flood conditions.	
					N/A There are no electric gate operators.	
12. Manual Operators (Backups) for Sluice / Slide Gates RODI					A All manual gate operators are in good working condition and are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.	
					M Manual gate operators are operational with minor deficiencies, but should perform through the next period of usage.	
					U Manual gate operators are not operational.	
					N/A If there are sluice or slide gates, there needs to be means of operating them manually. If there are no sluice/slide gates, this item is N/A.	
13. Concrete Surfaces (Such as gate wells, outfalls, intakes, or culverts)					A Negligible spalling, scaling or cracking. If the concrete surface is weathered, rough to the touch, or holds moisture, it is still satisfactory but should be seal coated to prevent freeze/ thaw damage.	
					M Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs/ sealing is necessary to prevent additional damage during periods of thawing and freezing.	
					U Surface deterioration or deep, controlled cracks present that result in an unreliable structure.	
					N/A There are no concrete surfaces.	

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Interior Drainage - Continued on Next Page

Interior Drainage System (continued)

For use during all Initial and Continuing Eligibility Inspections of systems carrying interior drainage through the FCW

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
14. Tilting, Sliding or Settlement of Concrete and Sheet Pile Structures (Such as gate wells, outfalls, intakes, or culverts)					A There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the project.	
					M There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The integrity of the structure is not in danger.	
					U There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance.	
					N/A There are no concrete structures.	
15. Foundation of Concrete Structures (Such as gate wells, outfalls, or culverts)					A No scouring / erosion, or undermining near the structure.	
					M Scouring / erosion near the footing of the structure but not close enough to affect structure stability during the next flood.	
					U Scouring or undermining at the foundation that has affected structural integrity.	
					N/A There are no concrete structures.	
16. Safety Fencing RODI					A Safety/ security fencing is in good condition and provides protection against falling or unauthorized access. Gates open and close freely, locks are in place, and there is little corrosion on metal parts.	
					M Safety/ security fencing or gates are damaged or corroded but appear to be maintainable. Locks may be missing or damaged.	
					U Safety/ security fencing and gates are damaged or corroded to the point that replacement is required, or potentially dangerous project features are not secured.	
					N/A There are no features of the internal drainage system that require safety fencing.	
17. Other Metallic Items					A All metal parts are protected from corrosion damage, and show no rust, damage, or deterioration that would cause a safety concern.	
					M Corrosion seen on metallic parts appear to be maintainable.	
					U Metallic parts are severely corroded and require replacement to prevent failure, equipment damage, or safety issues.	
					N/A There are no other significant metallic items associated with the interior drainage system.	

Key: **A** = Acceptable. **M** = Minimally Acceptable; Maintenance is required. **U** = Unacceptable. **N/A** = Not Applicable. **RODI** = Requires Operation During Inspection

Additional issues noted during the inspection:

Pump Stations

For use during all Initial and Continuing Eligibility Inspections of pump stations

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
1. Pump Stations Operating Log (A or U only)					A Operation and maintenance log is present at the pump station and is being used and updated, and personnel have been trained in pump station operations. Names and last training date shown in the log book.	
					U No operating log present, or refresher training for personnel has not been conducted.	
2. Pump Station Operations and Maintenance Manual (A or U only)					A Operation and Maintenance Manual and/or posted operating instructions are present and adequately cover all pertinent pump station features.	
					U Operation and Maintenance Manual missing or sponsor is unsure of location.	
3. Plant Building					A The building is in good structural condition, with no major cracks in concrete or brick. The roof is not leaking, exhaust fans are operational, there are no exposed electrical components, and the working environment is safe.	
					M There is significant cracking in the building structure, or the building is damaged in other ways such that it needs repair but does not threaten pumping operations.	
					U The structural integrity or stability of the building is threatened, or there is other damage to the building such a that pumping operations can not be performed as intended.	
4. Communications (A or U only)					A A telephone, cellular phone, two-way radio, or similar device is available to pump station operator and maintenance personnel.	
					U A telephone, cellular phone, two-way radio, or similar device is <u>not</u> available to pump station operator and maintenance personnel.	
5. Safety (A or U only)					A Exhaust fans, vents/louvers are working properly. Fuel storage / distribution meets state / local requirements. Fire extinguishers of sufficient quality, quantity, and type are on hand and are properly charged. Safety hardware (hand rails, grates for wet-wells, etc) is installed. Required safety items used (hearing, eyes, etc).	
					U Safety issues exist that could cause injury or loss of life.	
6. Safety Fencing RODI					A Safety/ security fencing is in good condition and provides protection against falling or unauthorized access. Gates open and close freely, locks are in place, and there is little corrosion on metal parts.	
					M Safety/ security fencing or gates are damaged or corroded but appear to be maintainable. Locks may be missing or damaged.	
					U Safety/ security fencing and gates are damaged or corroded to the point that replacement is required, or potentially dangerous project features are not secured.	
					N/A There are no features in or around the pump stations that require safety fencing.	

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Pump Stations - Continued on Next Page

Pump Stations (continued)

For use during all Initial and Continuing Eligibility Inspections of pump stations

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
7. Cranes RODI					A Crane operational, and have been inspected and load tested in accordance with OSHA requirements.	
					M Crane has not been inspected or operationally tested with the past year, or there are visible signs of corrosion, oil leakage, etc, requiring maintenance.	
					U Crane not operational, or tagged out of service.	
					N/A There are no cranes.	
8. Pumps					A All pumps are properly maintained and lubricated. Systems are periodically tested, and there is no evidence of cavitation, vibrations, or unusual sounds.	
					M Minor deficiencies exist which need to be closely monitored or repaired, such as the presence of minor vibrations or the corrosion of the pump shaft housing. However, the pumps are operational and are expected to perform through the next period of usage.	
					U One or more of the pumps are not operational, or the pump capacity has degraded to the point where project performance is in question.	
9. Power (A or U only)					A The power source is adequate, safe, and reliable. Backup generators are on hand or there is a reliable backup power plan in place. Backup units are properly sized, operational, periodically exercised, and properly maintained.	
					U Power source not considered safe or reliable to sustain operations during flood conditions.	
10. Insulation Megger Testing					A Results of megger tests show that the insulation meets manufacturer's or industry standards. Tested within the last 2 years.	
					M Results of megger test show that insulation resistance is lower than manufacturer's or industry standard, but can be corrected with proper application of heat, or megger testing not conducted with the last 2 years.	
					U Megger tests not conducted within past three years or indicate that insulation resistance is low enough that the equipment will not be able to meet design standards of operation; or evidence of arching or shorting is detected visually.	
11. Motors, Engines, Fans and Gear Reducers					A All items are operational. Preventative maintenance and lubrication is being performed and the system is periodically subjected to performance testing. Instrumentation, alarms, and auto shutdowns are operational.	
					M Systems have minor deficiencies, but are operational and will function adequately through the next flood.	
					U One or more of the primary motors or systems is not operational.	

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Pump Stations - Continued on Next Page

Pump Stations (continued)

For use during all Initial and Continuing Eligibility Inspections of pump stations

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
12. Pump Control Systems					A Operational and maintained free of damage, corrosion, or other debris.	
					M Operational with minor discrepancies. Will function adequately during the next flood event.	
					U Pump controls not operational. May not function adequately during the next flood event.	
13. Sumps / Wet well					A Clear of excessive debris, sediment, or other obstructions. Procedures are in place to remove debris accumulation during operation.	
					M Debris, sediment, or other obstructions are present and must be removed, but the sump/ wet well will function as intended during the next flood. Procedures are in place to remove debris accumulation during operation.	
					U Large debris or excessive silt present which will hinder or damage pumps during operation, or no procedures have been established to remove debris accumulation during operation.	
14. Trash Rakes (Mechanical Operations) RODI					A Drive chain, bearing, gear reducers, and other components are in good operating condition and are being properly maintained.	
					M The trash rake is in need of maintenance, but is still operational.	
					U Trash rake not operational or deficiencies will inhibit operations during the next flood event.	
					N/A There are no mechanical trash rakes.	
15. Trash Racks (non-mechanical)					A Trash racks are fastened in place and properly maintained.	
					M Trash racks are in place but are unfastened or have bent bars that allow debris to enter into the pipe or pump station. Repair or replacement is required.	
					U Trash rack is missing or damaged to the extent that it is no longer functional and must be replaced.	
					N/A There are no non-mechanical trash rakes.	
16. Sluice / Slide Gates RODI					A Gates open and close freely with minor leakage. Sill is free of sediment and other obstructions. Gates and lifters have been maintained.	
					M Gates have been damaged or have deteriorated, and open and close with resistance or binding. Leakage quantity is controllable and is not a threat to project performance. Maintenance is required.	
					U Gates do not open or close. Gate, stem, lifter and/or guides may be damaged or corroded.	
					N/A There are no sluice/slide gates.	

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Pump Stations - Continued on Next Page

Pump Stations (continued)

For use during all Initial and Continuing Eligibility Inspections of pump stations

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
17. Electric Gate Operators for Sluice / Slide Gates (Intake/ Discharge) RODI					A All electric gate operators are in good working condition and are adequately powered, and are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.	
					M All electric gate operators are operational with minor deficiencies, but should perform through the next period of usage.	
					U The electric gate operators are not operational, or the power source is not considered reliable to sustain operations during flood conditions.	
					N/A There are no electric gate operators.	
18. Manual Operators (Backups) for Sluice / Slide Gates RODI					A All manual gate operators are in good working condition and are capable of opening and closing the gate properly. Preventative maintenance is being performed and the system is tested periodically.	
					M Manual gate operators are operational with minor deficiencies, but should perform through the next period of usage.	
					U Manual gate operators are not operational.	
					N/A If there are sluice or slide gates, there needs to be means of operating them manually. If there are no sluice/slide gates, this item is N/A.	
19. Other Metallic Items (Equipment, Ladders, Platform Anchors, etc)					A All metal parts are protected from corrosion damage, and show no rust, damage, or deterioration that would cause a safety concern.	
					M Corrosion seen on metallic parts appear to be maintainable.	
					U Metallic parts are severely corroded and require replacement to prevent failure, equipment damage, or safety issues.	
					N/A There are no other significant metallic items associated with the pump stations.	

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Additional issues noted during the inspection:

Earthen (Excavated) Flood Control Channels

For use during all Initial and Continuing Eligibility Inspections of excavated flood control channels

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
1. Vegetation and Obstructions					A There are minimal obstructions or vegetation blocking the FCW.	
					M The channel is obstructed by minor log jams, snags, or vegetation. Less than 20% of the channel is obstructed.	
					U Obstructions or vegetation growth have obstructed over 20% of the river or channel.	
2. Shoaling					A No shoaling present.	
					M Non-aquatic grasses present on shoal. No trees or brush is present on shoal, and channel flow is not impeded.	
					U Shoaling is well established, stabilized by trees, brush, or other vegetation. Shoals are diverting flow to channel bank causing bank erosion and undercutting.	
3. Encroachments					A No trash, debris, excavations, structures, or other obstructions present within the project easement area. Encroachments which do not diminish proper functioning of the project have been previously approved by the Corps.	
					M Trash, debris, excavations, structures, or other obstructions present, or inappropriate activities that will not inhibit project operations and maintenance or emergency operations. Encroachments have not been approved by the Corps.	
					U Trash, debris, excavation, structures, or other obstructions present, or inappropriate activities that will inhibit project operations and maintenance or emergency operations.	
4. Riprap Revetments & Banks					A Existing riprap protection is properly maintained and is undamaged. Riprap clearly visible.	
					M No riprap displacement or scouring activity that could undercut banks, erode embankments, or restrict desired flow. Unwanted vegetation must be cleared and sprayed with an appropriate herbicide.	
					U Dense brush, trees, or grasses hide the rock protection, or meandering and/or scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling.	
					N/A There is no riprap protecting the channel.	
5. Erosion					A No head cutting or horizontal deviation observed.	
					M Head cutting and horizontal deviation evident, but is less than 30 cm (1 foot) from the designed grade or cross section.	
					U Apparent head cutting and horizontal deviation of more than 30 cm (1 foot) from the designed grade or cross section. Corrective actions required to stop or slow erosion.	

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Earthen Flood Control Channels - Continued on Next Page

Earthen (Excavated) Flood Control Channels (continued)

For use during all Initial and Continuing Eligibility Inspections of excavated flood control channels

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
6. Concrete Surfaces					A Negligible spalling, scaling or cracking. If the concrete surface is weathered, rough to the touch, or holds moisture, it is still satisfactory but should be seal coated to prevent freeze/ thaw damage.	
					M Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs/ sealing is necessary to prevent additional damage during periods of thawing and freezing.	
					U Surface deterioration or deep, controlled cracks present that result in an unreliable structure.	
					N/A There are no concrete structures associated with the flood control channel.	
7. Tilting, Sliding or Settlement of Concrete Structures					A There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the project.	
					M There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The integrity of the structure is not in danger.	
					U There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance.	
					N/A There are no concrete structures associated with the flood control channel.	
8. Foundation of Concrete Structures					A No scouring / erosion, or undermining near the structure.	
					M Scouring / erosion near the footing of the structure but not close enough to affect structure stability during the next flood.	
					U Scouring or undermining at the foundation that has affected structural integrity.	
					N/A There are no concrete structures associated with the flood control channel.	
9. Flap Gates/Flap Valves/ Pinch Valves RODI					A Flap gates open and close easily with minimal leakage. Gates show no corrosion damage and have been maintained.	
					M Gate will not fully open or close because of obstructions that can be easily removed, or has corrosion damage that requires maintenance.	
					U Gate is missing, has been damaged, or has deteriorated and needs repair.	
					N/A There are no flap gates.	

Key: **A** = Acceptable. **M** = Minimally Acceptable; Maintenance is required. **U** = Unacceptable. **N/A** = Not Applicable. **RODI** = Requires Operation During Inspection

Additional issues noted during the inspection:

Concrete Lined Flood Control Channels

For use during all Initial and Continuing Eligibility Inspections of concrete lined flood control channels

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
1. Vegetation and Obstructions					A No obstructions, vegetation, debris, or sediment accumulation within the channel. Channel joints and weep holes are also free of grass and weeds.	
					M Sediment and debris present, but not to the degree that it supports vegetation. Obstructions/ debris have not impaired the channel flow capacity. Sediment and debris removal recommended.	
					U Sediment shoals are well established and support vegetation, or there are obstructions or accumulated debris that have impaired the channel flow capacity. Sediment and debris removal required to re-establish flow capacity.	
2. Shoaling					A No shoaling present.	
					M Non-aquatic grasses present on shoal. No trees or brush is present on shoal, and channel flow is not impeded.	
					U Shoaling is well established, stabilized by saplings, brush, or other vegetation. Shoals are diverting flow to channel walls. Channel flow capacity is reduced and maintenance is required.	
3. Concrete Surfaces					A Negligible spalling, scaling or cracking. If the concrete surface is weathered, rough to the touch, or holds moisture, it is still satisfactory but should be seal coated to prevent freeze/ thaw damage.	
					M Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs/ sealing is necessary to prevent additional damage during periods of thawing and freezing.	
					U Surface deterioration or deep, controlled cracks present that result in an unreliable structure.	
4. Tilting, Sliding or Settlement of Concrete Structures					A There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the project.	
					M There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The integrity of the structure is not in danger.	
					U There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance.	
5. Foundation of Concrete Structures					A No scouring / erosion, or undermining near the structure.	
					M Scouring / erosion near the footing of the structure but not close enough to affect structure stability during the next flood.	
					U Scouring or undermining at the foundation that has affected structural integrity.	

Key: **A** = Acceptable. **M** = Minimally Acceptable; Maintenance is required. **U** = Unacceptable. **N/A** = Not Applicable. **RODI** = Requires Operation During Inspection

Concrete Lined Channels - Continued on Next Page

Concrete Lined Flood Control Channels

For use during all Initial and Continuing Eligibility Inspections of concrete lined flood control channels

RATED ITEM	A	M	U	N/A	EVALUATION	LOCATIONS/ REMARKS / RECOMMENDATIONS
6. Monolith Joints					A The monolith joint material is in good condition.	
					M The monolith joint material is deteriorating and needs to be repaired or replaced to prevent spalling and cracking during freeze/ thaw cycles.	
					U The monolith joint material is severely deteriorated and the concrete has spalled and cracked, damaging the waterstop to the point where it will not provide the intended level of protection during a flood.	
					N/A There are no monolith joints.	
7. Flap Gates/Flap Valves/ Pinch Valves RODI					A Flap gates open and close easily with minimal leakage. Gates show no corrosion damage and have been maintained.	
					M Gate will not fully open or close because of obstructions that can be easily removed, or has corrosion damage that requires maintenance.	
					U Gate is missing, has been damaged, or has deteriorated and needs repair.	
					N/A There are no flap gates.	

Key: **A** = Acceptable. **M** = Minimally Acceptable; Maintenance is required. **U** = Unacceptable. **N/A** = Not Applicable. **RODI** = Requires Operation During Inspection

Additional issues noted during the inspection:

ADDITIONAL PROJECT COMMENTS:

(REFERENCE PROJECT FEATURE AND ITEM NUMBER IN THE COMMENT.)

Instructions for the Inspection Guide

GENERAL INSTRUCTIONS.

1. The sections of this report labeled "Basic Eligibility" and "FCW Engineering" only need to be completed during Initial Eligibility Inspections.
2. Determination of Minimum Elevation for Levees and Floodwalls (#1 under FCW Engineering):
Depending on available data and local Corps policy, the minimum elevation required may be calculated using traditional methods, with the addition of 1 foot of freeboard in agricultural areas and 2 feet of freeboard in urban areas, or using annual exceedance probability, which numerically accounts for the natural variation and uncertainty when estimating discharge-probability and stage-discharge functions so that additional requirements for elevation are based on the level of risk in the data.
3. All other sections of this guide that correspond to project features in the Flood Control Work must be fully completed during every Continuing and Initial Eligibility Inspection.
4. RODI stands for "Requires Operation During Inspection". Items marked "RODI" will be rated based on the way they work during the inspection.
5. Additional areas for inspection will be incorporated by the inspector into this guide if the layout or physical characteristics of the project warrant this. Appropriate entries will be made in the REMARKS block.

RATINGS OF INDIVIDUAL ITEMS:

The following terms and definitions are used when determining the rating for each item and/or component in the flood control work.

A - Acceptable: The rated item is in satisfactory condition, with no deficiencies, and will function as designed and intended during the next flood event.

M - Minimally Acceptable: This rated item has minor deficiencies that need to be corrected. The minor deficiencies will not seriously impair the functioning of the item during the next flood event. The overall reliability of the project will be lowered because of the minor deficiency.

U - Unacceptable: The deficiencies are serious enough that the rated item will not adequately function during the next flood event, compromising the project's ability to provide reliable flood protection.

DETERMINATION OF OVERALL PROJECT CONDITION CODE:

The lowest single rating given for a rated item will determine the overall condition of the project:

1. If all items are rated as Acceptable, the overall project condition will be rated as Acceptable.
2. If one or more items are rated as Minimally Acceptable, the overall project condition will be rated Minimally Acceptable.
3. If one or more item is rated as Unacceptable, the overall project condition will be rated as Unacceptable.

PROJECT CONDITION AND ELIGIBILITY FOR PL84-99 ASSISTANCE:

1. Projects rated as Acceptable are considered "**Active**" and eligible for PL84-99 post flood or storm damage rehabilitation assistance from the U.S. Army Corps of Engineers.
2. Projects rated Minimally Acceptable are considered "**Active**" and eligible for PL84-99 rehabilitation assistance during the time that it takes to make needed corrections. This timeframe will be agreed upon between the project sponsor and Corps inspector at the time of the inspection (or shortly thereafter). If the project sponsor does not present the Corps with proof of completion of the repairs/maintenance by the end of this timeframe, then the project will be "**Inactive**" and will be ineligible for PL84-99 rehabilitation assistance.
3. Projects rated as Unacceptable are immediately put in an "**Inactive**" status and are not eligible for PL84-99 post flood or storm damage rehabilitation assistance from the Corps of Engineers. The project will remain in an inactive status until the project sponsor presents the Corps with proof that all of the required repairs/maintenance has been completed. (This includes any repairs/ maintenance required for project features rated minimally Acceptable, as well as those rated Unacceptable.)